

**Claims after this response:**

1(Currently Amended). An encoder comprising:

a first array of  $n$  photodetectors, where  $n > 2$ , each photodetector being characterized by a width  $d$ ; and

a code strip imaging system for generating an image from a code strip on said first array, said image comprising alternating dark and light stripes, said stripes having a width of  $D$ , said dark stripes having a lower luminosity than said ~~white~~ light stripes, wherein  $nd = (n-1)D$ , said code strip image moving in a first direction with respect to said first array, said distances  $d$  and  $D$  being measured in a direction parallel to said first direction,

wherein said first array of photodetectors is divided into a second array of photodetectors and a third array of photodetectors, each photodetector in said second array and said third array having a width  $d$ , wherein said third array of photodetectors is offset from said first second array of photodetectors in said first direction by a distance equal to  $D/2 + 2mD$ , where  $m$  is an integer greater than or equal to 0.

2(Original). The encoder of Claim 1 further comprising a plurality of detector circuits, each detector circuit converting a light intensity signal from a corresponding one of said photodetectors to a channel signal that switches between first and second logic states when said code strip moves relative to said array.

3(Currently Amended). ~~The encoder of Claim 2 further comprising~~ An encoder comprising:

a first array of  $n$  photodetectors, where  $n > 2$ , each photodetector being characterized by a width  $d$ ; and

a code strip imaging system for generating an image from a code strip on said first array, said image comprising alternating dark and light stripes, said stripes having a width of

D, said dark stripes having a lower luminosity than said light stripes, wherein  $nd=(n-1)D$ , said code strip image moving in a first direction with respect to said first array, said distances  $d$  and  $D$  being measured in a direction parallel to said first direction;

a plurality of detector circuits, each detector circuit converting a light intensity signal from a corresponding one of said photodetectors to a channel signal that switches between first and second logic states when said code strip moves relative to said array; and

a complementary array of  $n$  photodetectors, each photodetector in said complementary array being characterized by a width  $d$ , said complementary array of photodetectors being positioned relative to said first array of photodetectors such that each photodetector in said complementary array of photodetectors generates a light intensity signal that is a complement of said light intensity signal generated by a corresponding one of said photodetectors in said first array.

4(Canceled).

5(Currently Amended). ~~The encoder of Claim 1~~ An encoder comprising:

a first array of  $n$  photodetectors, where  $n>2$ , each photodetector being characterized by a width  $d$ ; and

a code strip imaging system for generating an image from a code strip on said first array, said image comprising alternating dark and light stripes, said stripes having a width of  $D$ , said dark stripes having a lower luminosity than said light stripes, wherein  $nd=(n-1)D$ , said code strip image moving in a first direction with respect to said first array, said distances  $d$  and  $D$  being measured in a direction parallel to said first direction.

wherein said first array of photodetectors is divided into a second array of photodetectors and a third array of photodetectors, each photodetector in said second array and said third array having a width  $d$ , wherein said third array of photodetectors is offset from said second array of photodetectors in said first direction, and

wherein said third array of photodetectors is offset from said second array of photodetectors in a direction orthogonal to said first direction.

6(Currently Amended). The encoder of Claim 4 2 wherein said channel signals define a state for said encoder that repetitively cycles through  $2n$  values when said code strip image moves a distance of  $2D$  relative to said first array in said first direction.